

ABSTRACT

A system of Flash EEPROM memory chips with controlling circuits serves as non-volatile memory such as that provided by magnetic disk drives. Improvements include selective multiple sector erase, in which any combinations of 5 Flash sectors may be erased together. Selective sectors among the selected combination may also be de-selected during the erase operation. Another improvement is the ability to remap and replace defective cells with substitute cells. The remapping is performed automatically as soon as a defective cell is detected. When the number of defects in a Flash sector becomes large, the whole sector is 10 remapped. Yet another improvement is the use of a write cache to reduce the number of writes to the Flash EEPROM memory, thereby minimizing the stress to the device from undergoing too many write/erase cycling.